Drydocking Availability for YTB 831 (FY19)	
	SCOPE OF WORK (SOW), FOR OUTSIDE SHIPYARD SUPPORT
Number	Description
2019-00	Tow vessel from point to point
00.1	a) Location of Work: 1) From US Naval Base, Guantanamo Bay, Cuba to approved dry-dock facility and return. b) Identification: 1) YTB-831 (Dekanawida) c) References: 1) Not Applicable
00.1	Task Requirements
00.1.1	Provide a suitable vessel to provide towing services from U.S. Naval Station, Guantanamo Bay, Cuba to selected Dry-docking facility.
00.1.2	The selected Towing Company shall provide sufficient towing equipment services, (Towing Gears, Towing Light, Towing Peanuts, and Batteries) and manpower to safely complete all aspects of the safe rigging for tow to and from accepted dry dock facility, and derigging after return.
00.1.3	Towing of the vessel must be accomplished in accordance with all applicable US Coast Guard Regulations.
00.1.4	Note: Towing Preparation accomplished by the Contractor for GTMO Port Ops,shall be inspected and accepted by Towing Company.
2019-01	Dry Docking of the Craft
01.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) To Be Determine c) References: 1) NAVSHIPS Drawing No. 845-4563152 Guidance Docking Plan
01.2	Docking Requirements
01.2.1	Provide suitable dry docking facility to dry dock the vessel for under water repairs, sand blasting, preservation efforts.
02.1.2	Note: No painting or preservation efforts will be applied in any area where dust/dirt can be introduced into the efforts.
02.1.3	Properly dock the vessel IAW above reference "Docking Plan" so as to eliminate any undue stress or strain on the hull.
02.1.4	Docking shall avoid placing blocks in a way of any below water appendages, sea chest strainers, discharges, submarine rubber, and/or zinc anodes.
02.1.5	The vessel shall be fleeted on the blocks in order to ensure areas covered by docking blocks receive repairs, preservation, and paint coverage. Care must be taken to ensure all blocking will be equally distributed in strengthened areas and not cover or impede any below water appendages, zinc anodes, screens, or discharges, and submarine rubber.
01.3	Dry Docking
01.3.1	Conforming to the requirements as stated above references, dry dock the vessel for under water repairs, sandblasting/water blasting, preservation, painting, and all interior/exterior work which would require dry docking to safely complete.
01.3.2	Dry dock vessel in accordance with reference drawing.
01.3.3	Re-position vessel (fleet), to insure 100% repairs, cleaning, preservation, and painting.
01.4	Dry Docking Report
01.4.1	Verify and record all information as required for docking block locations to ensure docking blocks will be equally distributed in strengthened areas IAW above references.
01.4.2	Upon completion of this verification, provide a visual inspection report in writing to the On-Site Representative.
01.5	Cleaning of Underwater Hull
01.5.1	Immediately after dry-docking, water blast underwater surfaces up to the entire underwater area up to and including the gunnels. This includes all vertical and horizontal areas.
01.5.2	Remove all marine growth from the shafting, propeller, & rudder by water blasting.
	Note: Final cleaning of shafting, propeller, & rudder will be accomplished on each individual tasks.
2019-02	Fuel Removal; Port and Starboard, No. 2 Fuel Tank
02.1	Location of Work: 1. Port and Stbd. No. 2 Fuel Tanks a) Day Tank 812-Gls Capacity/Frame -1-22-0 (FR 22-23) d) Tank No. 2 Port 5,300-Gls Capacity - Frame 2-22-2 (FR 22-35) e) Tank No. 2 Stbd 5,300-Gls Capacity - Frame 2-22-1 (FR 22-35)
02.1.1	Inventory all fuel to be removed from the vessel and furnish the On-Site Representative a written record of inventory.
02.1.2	Pump out/remove fuel from each tank and stow in clean approved containers IAW local regulations ashore for later return to the vessel. approximately more or less11,000 Gallons of Fuel)
02.1.3	Provide fuel truck services for the removal and return of fuel from the tanks.
02.1.4	Selected shipyard will provide appropriate fuel storage until completion of boat repair.
02.1.5	**Note:** Where required by local regulations, provide oil boom services around the periphery of the craft prior to transfer of fuel from craft to fuel truck or receptacle.
02.1.6	Completely drain all residuals from the tanks and ensure all tanks are clean and adequately vented to atmosphere. Dispose of any/all residuals IAW local regulations.
02.1.7	Upon completion cleaning interior tank surfaces (Hull, bulkhead and overhead) inspect each tank for possible loosed paint.
02.1.8	*Note: For purposes of this estimate, allow for a combined total of 96 Sq. Ft. of loosed paint to be accomplished in these tank preservation. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
02.1.9	All loosed paint shall cleaned to bare metal prior to prime paint in accordance with existing designed characteristics.
02.1.10	Selected shipyard will be responsible for any incidental oil spill during liquid transfer.
02.1.11	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
02.1.12	Note: Clean each fuel tank interior surfaces, and including piping penetrating in the tank prior to return fuel.

Drydocking Availability for YTB 831 (FY19)	
	SCOPE OF WORK (SOW), FOR OUTSIDE SHIPYARD SUPPORT
Number	**Description**
2019-03	**Tank Cleaning/Inspection, Repair and Preservation**
03.1	Location of Work: 1. Fuel Tanks a) Tank No. 1 Port 4,388-Gls Capacity, Location 3-12-1-F Converted to Ballast Tank b) Tank No. 1 Stbd 4,388-Gls Capacity, Location 3-12-F-1 Converted to Ballast Tank c) Tank No. 2 Port 5,280-Gls Capacity, Location 3-22--1-F Service Main Fuel Tank d) Tank No. 2 Stbd 7,910-Gls Capacity, Location 3-22-2-F Service Main Fuel Tank e) Tank No. 3 Port 3,584-Gls Capacity, Location 2-50-1-F Converted to Ballast Tank f) Tank No. 3 Stbd 3,584-Gls Capacity, Location 2-50-2-F Converted to Ballast Tank 2. Ballast/Void Tanks a) Fwd 2,900-Gls Capacity, Location 3-5--0-V b) Aft Port 1,800-Gls Capacity, Location 3-55-2-V c) Aft Stbd 1,800-Gls Capacity, Location 3-55-1-V 3. Fore Peak Tank - 2,068 Gls. Capacity, Location 3-0-0-V 4. Chain Locker, Dry, Location 2-3-0-V 5. Void Tank, Dry, Location 3-44-0-V (Lazarete Compartment) 6. Dirty Oil Tank, 305 Gls. Capacity, Location 3-44-0-V (Shaft Compartment)
03.2	**Gas Freeing Services**
03.2.1	**Task Requirement**
03.2.1.1	Gas free tanks for entry and cleaning to include all chain locker, engine room bilges, machinery spaces, steering gear room, half-pipe fenders, and rudder, certify with Shipyard Marine Chemist Certificate or Gas Free Engineer. Where hot work is to be accomplished, Gas free those areas and any adjoin area's) to a gas free level which will safely allow/permit hot work. All bids should include all gas free services throughout the vessel where required for the entire yard work cycle.
03.2.1.2	Entry by any person or persons into confined spaces is prohibited until such spaces have been inspected, tested, and certified safe for entry and or work.
03.2.1.3	Upon completion of testing, a gas free certificate and test log shall be issued which indicates the conditions required for entry and/or work existing at the time of the certificate was issued.
03.2.1.4	Test results shall be satisfactory before a certificate for entry or work is issued. Approved Gas Free Certificate shall be posted prior to personnel entry or commencement of any work.
03.2.1.5	When testing indicates a hazardous condition exists, stop all work and remove personnel from the space.
03.2.1.6	Stop entry and work until all unsafe conditions have been corrected or controlled and the space has been retested and recertified.
03.2.1.10	When materials and conditions within the space introduce flammable, toxicants or unsafe oxygen levels, identify and remove the cause or source of the contamination by cleaning, flushing and draining, tagging out, isolating or plugging and ventilating before entry of work. Space must be recertified gas free and safe for anticipated work.
03.2.1.11	Adequate ventilation shall be maintained for the duration of the work.
03.2.1.13	The shipyard Gas Free Engineer shall personally specify the PPE's and emergency rescue provisions necessary for safe entry and work.
03.2.1.14	The atmosphere shall be periodically or continuously tested and maintain safe condition as directed by the Gas Free Engineer during hot work and cleaning operations such as sludge removal that has the potential for generating toxic fumes.
03.2.1.15	Prior to any hot work on rudder, proper precautions and procedures must be followed as the rudders may contain sufficient amount of metal conditioning compound to cause an explosion or fire.
03.2.1.16	Gas free services shall be provided by the selected shipyard and will remain active throughout the craft until completion of all efforts requiring gas free services.
03.3	**Tank Cleaning**
03.3.1	**Task Requirement**
03.3.1.1	Remove bolted access plates on each tanks listed in this solicitation to gain safe entry.
03.3.1.2	Open each tank and clean free of remaining fuel, oil, water, sludge and any other foreign matter, properly dispose of same IAW local regulations.
03.3.1.3	Pressure wash entire interior of all tanks including all vertical, horizontal surfaces, framing and piping, with lint free rags, properly dispose of same IAW local regulations.
03.3.1.4	Hold tanks open for inspection and approval from the On-Site Representative.
03.3.1.5	Close/secure tanks with new tank access covers, & securing hardware including mounting/retainer ring, stainless steel counter sink screws (on all the main deck tank covers) and gasket material after completion of repair work and satisfactory inspections by On-Site Representative.
03.3.1.6	Provide temporary lighting and ventilation into all tanks as required. Ensure all lighting/ventilation is explosive proof.
03.3.1.7	Perform these tasks in coordination/succession with the gas freeing efforts.
03.3.1.8	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative for acceptance.
03.4	**Tank Cleaning Inspection/Repair and Test**

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	SCOPE OF WORK (SOW), FOR OUTSIDE SHIPYARD SUPPORT
Number	**Description**
03.4.1	**Task Requirement**
03.4.1.1	Accomplish a visual inspection of tank listed in 03.1 for structural damage and deterioration, piping, structural members and manhole cover upon completion of primer coat. Including sounding tubes, tank vents/overflows . Accomplish this effort immediately after successful gas freeing phase of tanks and craft for safe entry and hot work.
03.4.1.2	Inspect tanks external/internal physical condition visually identify any cracks, pitting, and other defects. Prepare/submit condition report to On-Site Representative.
03.4.1.3	All replacement materials shall be blasted to white metal and appropriate pretreatment/preservation applied prior to installation on the tanks.
03.4.1.4	All replacement materials must be approved by the On-Site Representative prior to application.
03.4.1.5	Replacement plates, all welded and disturbed areas must be preserved IAW NAVSEA painting schedule.
03.4.1.6	*Note: For purposes of this estimate, allow for a combined total of 72 Sq. Ft. of hull plate and bulkhead plate replacement, 10 linear feet of defective weld seams and butts (in addition to tank covers) to be accomplished in these tank repairs. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
03.4.1.7	*Note: Accomplish repair of vertical ladder of each tank as required.*
03.4.1.8	Perform these tasks in coordination/succession with the gas freeing efforts.
03.5	**Piping Inspection**
03.5.1	Inspect all internal piping in each tank for defects such as but not limited to: loose piping run connections, mounting brackets, and visible deterioration of piping. Check all bulkhead penetrations. Prepare/submit condition report to On-Site Representative.
03.5.2	Note: Perform these tasks in coordination/succession with the gas freeing efforts.
03.5.3	Issues which may be found during this phase which exceed the bid quantities listed in the Note at section 03.6.2 will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.
03.6	**Piping Repairs**
03.6.1	Repair/replace pipe, pipe hangers, mounting brackets, fastening devices, air vent and other associated components, if found defective/deteriorated.
03.6.2	*Note: For purposes of this estimate, allow for a combined 20-ft linear of pipe to be accomplished in these tank piping repairs. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
03.6.3	All replacement materials shall be blasted to white metal, cleaned, and appropriate pretreatment/preservation applied prior to installation on the tanks.
03.7	**Tank testing**
03.7.1	Perform testing efforts after the tank inspections and repairs has been satisfactory accomplished and completed.
03.7.2	Blank-off all piping and conduct pneumatic test of two (2) PSI of each tank with the presence of the On-Site Representative. An appropriate water column shall be used to conduct air test.
03.7.3	Test pressure must be maintained a minimum of ten (10) minutes to ensure each tank remains leak free and acceptable.
03.7.4	Subsequent test shall be conducted to prove tanks and associated piping leak free.
03.7.5	Upon completion of satisfactory test, remove blanks and leave fuel piping and tanks ready for service
03.7.6	Prior to return of fuels ensure each tank(s) and associated piping are clean and free of dust/dirt and foreign matter.
03.7.7	Return fuels and water after undocking of the craft and authorized by the On-Site Representative.
03.7.8	All testing efforts shall be witnessed and accepted by On-Site Representative.
03.7.9	Evident leakage shall be located and eliminated by repairs.
03.7.10	Note: Should these leaks be caused by shipyard repairs they will be corrected at no additional cost.
03.7.11	Repair(s) identified in excess of the submitted 20-sf estimation and are not caused by the shipyard will be subjected/addressed SEPCOR (Separate Correspondence) to On-Site Representative.
03.7.12	Note: Provide three legible copies of air test results and certificate of completion to On Site Representative.
2019-04	**Ballast Tank, Forepeak Tank, Fuel Tank and Chain Locker; Clean, Inspect, Repair and Preserve**
04.1	**P/S No. 1 Fuel Tanks; Clean, Inspect, Repair and Preserve (Converted to Ballast Tank)**
04.1.1	Pump out contaminated fresh water approximately more or less 8,776 gallons to facilitate cleaning, inspections and preservations.
04.1.2	Selected shipyard shall be responsible for any incidental oil spill during liquid transfer.
04.1.3	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
04.1.4	Selected shipyard shall be responsible for filling fresh water to the ballast tanks.
04.1.5	Upon completion of water removal open and ventilate each tank prior to gas free.
04.1.6	Open each tank and clean free of remaining water, sludge and any other foreign matter, properly dispose of same IAW local regulations.
04.1.7	Provide temporary lighting and ventilation into all tanks as required. Ensure all lighting/ventilation is explosive proof.
04.1.8	Perform these tasks in coordination/succession with the gas freeing efforts.
04.1.9	Upon completion of dewatering clean metal surfaces by degreasing compound prior to mechanical clean or jet blasting.
04.1.10	Clean to a gas free condition the fuel oil tanks including piping terminating in the tanks.
04.1.11	Install steel blanks with gaskets or expandable plugs on open ends of piping in the tanks prior to jet blast.
04.1.12	Jet blast tank interior surfaces (hull, bulkhead and overhead) to white metal in entirety in accordance with reference drawing. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.1.13	Ensure metal surfaces, and including piping's shall be cleaned with degreasing compound prior to application of paint.
04.1.14	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter. Ensure metal surfaces shall be cleaned with degreasing compound prior to paint.
04.1.15	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.1.16	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.1.17	Extent paint coating drying time as required by weather conditions.
04.1.18	**Apply Paint entire tanks surfaces with one coat MIL-PRF-23236, Type VII, Class 7/18, 20-30 MILS Thickness.**
04.1.19	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS Thickness.**
04.1.20	Upon completion of preservation hold tanks open for inspection by On-Site Representative.
04.1.21	Remove steel blanks or expandable plugs previously installed at the open ends of piping in the tanks prior to close the tank..
04.1.22	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.1.23	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
04.2	**P/S No. 3 Fuel Tanks; Clean, Inspect, Repair and Preserve (Converted to Ballast Tank)**
04.2.1	Pump out contaminated fresh water approximately more or less 7,168 gallons to facilitate cleaning, inspections and preservations.

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Number	**Description**
04.2.2	Selected shipyard shall be responsible for any incidental oil spill during liquid transfer.
04.2.3	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
04.2.4	Selected shipyard shall be responsible for filling fresh water to the ballast tanks.
04.2.5	Upon completion of water removal open and ventilate each tank prior to gas free.
04.2.6	Open each tank and clean free of remaining water, sludge and any other foreign matter, properly dispose of same IAW local regulations.
04.2.7	Provide temporary lighting and ventilation into all tanks as required. Ensure all lighting/ventilation is explosive proof.
04.2.8	Perform these tasks in coordination/succession with the gas freeing efforts.
04.2.9	Upon completion of dewatering clean metal surfaces by degreasing compound prior to mechanical clean or jet blasting.
04.2.10	Clean to a gas free condition the fuel oil tanks including piping terminating in the tanks.
04.2.11	Install steel blanks with gaskets or expandable plugs on open ends of piping in the tanks prior to jet blast.
04.2.12	Jet blast tank interior surfaces (hull, bulkhead and overhead) to white metal in entirety in accordance with reference drawing. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.2.13	Ensure metal surfaces, and including piping's shall be cleaned with degreasing compound prior to application of paint.
04.2.14	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter. Ensure metal surfaces shall be cleaned with degreasing compound prior to paint.
04.2.15	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.2.16	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.2.17	Extent paint coating drying time as required by weather conditions.
04.2.18	**Apply Paint entire tanks surfaces with one coat MIL-PRF-23236, Type VII, Class 7/18, 20-30 MILS Thickness.**
04.2.19	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS Thickness.**
04.2.20	Upon completion of preservation hold tanks open for inspection by On-Site Representative.
04.2.21	Remove steel blanks or expandable plugs previously installed at the open ends of piping in the tanks prior to close the tank..
04.2.22	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.2.23	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
04.3	**Fwd. Ballast Tank; Clean, Inspect, Repair and Preserve**
04.3.1	Pump out contaminated fresh water approximately more or less 2,900 gallons to facilitate cleaning, inspections and preservations.
04.3.2	Selected shipyard shall be responsible for any incidental oil spill during liquid transfer.
04.3.3	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
04.3.4	Selected shipyard shall be responsible for filling fresh water to the ballast tanks.
04.3.5	Upon completion of water removal open and ventilate each tank prior to gas free.
04.3.6	Open each tank and clean free of remaining water, sludge and any other foreign matter, properly dispose of same IAW local regulations.
04.3.7	Provide temporary lighting and ventilation into all tanks as required. Ensure all lighting/ventilation is explosive proof.
04.3.8	Perform these tasks in coordination/succession with the gas freeing efforts.
04.3.9	Upon completion of dewatering clean metal surfaces by degreasing compound prior to mechanical clean or jet blasting.
04.3.10	Clean to a gas free condition the fuel oil tanks including piping terminating in the tanks.
04.3.11	Install steel blanks with gaskets or expandable plugs on open ends of piping in the tanks prior to jet blast.
04.3.12	Jet blast tank interior surfaces (hull, bulkhead and overhead) to white metal in entirety in accordance with reference drawing. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.3.13	Ensure metal surfaces, and including piping's shall be cleaned with degreasing compound prior to application of paint.
04.3.14	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter. Ensure metal surfaces shall be cleaned with degreasing compound prior to paint.
04.3.15	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.3.16	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.3.17	Extent paint coating drying time as required by weather conditions.
04.3.18	**Apply Paint entire tanks surfaces with one coat MIL-PRF-23236, Type VII, Class 7/18, 20-30 MILS Thickness.**
04.3.19	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS Thickness.**
04.3.20	Upon completion of preservation hold tanks open for inspection by On-Site Representative.
04.3.21	Remove steel blanks or expandable plugs previously installed at the open ends of piping in the tanks prior to close the tank..
04.3.22	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.3.23	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
04.4	**P/S Aft. Ballast Tank; Clean, Inspect, Repair, and Preserve**
04.4.1	Pump out contaminated fresh water approximately more or less 3,600 gallons to facilitate cleaning, inspections and preservations.
04.4.2	Selected shipyard shall be responsible for any incidental oil spill during liquid transfer.
04.4.3	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
04.4.4	Selected shipyard shall be responsible for filling fresh water to the ballast tanks.
04.4.5	Upon completion of water removal open and ventilate each tank prior to gas free.
04.4.6	Open each tank and clean free of remaining water, sludge and any other foreign matter, properly dispose of same IAW local regulations.
04.4.7	Provide temporary lighting and ventilation into all tanks as required. Ensure all lighting/ventilation is explosive proof.
04.4.8	Perform these tasks in coordination/succession with the gas freeing efforts.
04.4.9	Upon completion of dewatering clean metal surfaces by degreasing compound prior to mechanical clean or jet blasting.
04.4.10	Clean to a gas free condition the fuel oil tanks including piping terminating in the tanks.
04.4.11	Install steel blanks with gaskets or expandable plugs on open ends of piping in the tanks prior to jet blast.
04.4.12	Jet blast tank interior surfaces (hull, bulkhead and overhead) to white metal in entirety in accordance with reference drawing. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.4.13	Ensure metal surfaces, and including piping's shall be cleaned with degreasing compound prior to application of paint.
04.4.14	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter. Ensure metal surfaces shall be cleaned with degreasing compound prior to paint.
04.4.15	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.4.16	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.4.17	Extent paint coating drying time as required by weather conditions.
04.4.18	**Apply Paint entire tanks surfaces with one coat MIL-PRF-23236, Type VII, Class 7/18, 20-30 MILS.**
04.4.19	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS.**
04.4.20	Upon completion of preservation hold tanks open for inspection by On-Site Representative.
04.4.21	Remove steel blanks or expandable plugs previously installed at the open ends of piping in the tanks prior to close the tank..
04.4.22	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.4.23	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.

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Number	Description
04.5	**Forepeak Tank; Clean, Inspect, Repair, and Preserve**
04.5.1	Pump out contaminated fresh water approximately more or less 2,608 gallons to facilitate cleaning, inspections and preservations.
04.5.2	Selected shipyard shall be responsible for any incidental oil spill during liquid transfer.
04.5.3	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
04.5.4	Selected shipyard shall be responsible for filling fresh water to the ballast tanks.
04.5.5	Upon completion of water removal open and ventilate each tank prior to gas free.
04.5.6	Open each tank and clean free of remaining water, sludge and any other foreign matter, properly dispose of same IAW local regulations.
04.5.7	Provide temporary lighting and ventilation into all tanks as required. Ensure all lighting/ventilation is explosive proof.
04.5.8	Perform these tasks in coordination/succession with the gas freeing efforts.
04.5.9	Upon completion of dewatering clean metal surfaces by degreasing compound prior to mechanical clean or jet blasting.
04.5.10	Clean to a gas free condition the fuel oil tanks including piping terminating in the tanks.
04.5.11	Install steel blanks with gaskets or expandable plugs on open ends of piping in the tanks prior to jet blast.
04.5.12	Jet blast tank interior surfaces (hull, bulkhead and overhead) to white metal in entirety in accordance with reference drawing. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.5.13	Ensure metal surfaces, and including piping's shall be cleaned with degreasing compound prior to application of paint.
04.5.14	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter. Ensure metal surfaces shall be cleaned with degreasing compound prior to paint.
04.5.15	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.5.16	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.5.17	Extent paint coating drying time as required by weather conditions.
04.5.18	**Apply One Coat of MIL-PRF-23236, Type VII, Class 7, 4-8 MILS Thickness.**
04.5.19	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7, 10-12 MILS Thickness.**
04.5.20	Upon completion of preservation hold tanks open for inspection by On-Site Representative.
04.5.21	Remove steel blanks or expandable plugs previously installed at the open ends of piping in the tanks prior to close the tank..
04.5.22	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.5.23	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
04.6	**Chain Locker; Clean, Inspect, Repair, and Preserve**
04.6.1	Open, ventilate, and clean chain locker, including fairlead roller assembly and sump.
04.6.2	Remove water, mud, silt and debris, and shall be disposed in accordance with local state and federal regulations.
04.6.3	Clean to a gas free condition the chain locker prior to entry.
04.6.4	Provide crane and rigging services for the removal of anchor chain approximately more or less 150 L.F.
04.6.5	Jet blast chain locker interior surfaces to white metal in entirety (bulkhead, hull, piping, vertical ladder, and overhead) approximately more or less 316 square feet.
04.6.6	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter.
04.6.7	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.6.8	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.6.9	Extent paint coating drying time as required by weather conditions.
04.6.10	**Apply One Coat of MIL-PRF-23236, Type VII, Class, 20-30 MILS.**
04.6.11	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS.**
04.6.12	Upon completion of preservation hold tanks open for inspection by On-Site Representative.
04.6.13	Remove steel blanks or expandable plugs previously installed at the open ends of piping in the tanks prior to close the tank..
04.6.14	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.6.15	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
04.7	**Void Tank ; Inspect, Repair, and Preserve**
04.7.1	Clean bilge heavy rust to bare metal, and including bilge pocket.
04.7.2	Cut appropriate access opening on bottom hull penetrating bilge pocket areas to facilitate inspections and repairs.
04.7.3	Note: All plates within 25% corrosion limits shall be replaced in accordance with design characteristics.
04.7.4	*Note: For purposes of this estimate, allow 81Sq. Ft. of bilge bulkhead and 2 sq. ft. bilge pocket hull plate replacement in these repairs on different areas. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
04.7.5	Replace 1-1/2 dia. x 6 in. long pipe nipple penetrating astern tube.
04.7.6	Replace 1-1/2 pipe flange gasket prior to reconnection. Ensure flanges surfaces are in good physical condition. Replace as required.
04.7.7	Replace 3" x 3" 2' angle plate penetrating bilge hull.
04.7.8	Prior to installation of flange to flange connections ensure piping penetrating engine room is debris/barnacle free. Clean as required.
04.7.9	Upon completion of repair preserve entire void tank in accordance with design characteristics.
04.7.10	Jet blast void tank interior surfaces to white metal approximately more or less 316 sq. ft.. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.7.11	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter.
04.7.12	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.7.13	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.
04.7.14	Extent paint coating drying time as required by weather conditions.
04.7.15	**Apply Paint entire tanks surfaces with one coat MIL-PRF-23236, Type VII, Class 7/18, 20-30 MILS Thickness.**
04.7.16	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS Thickness.**
04.7.17	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.7.18	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
04.8	**Dirty Oil Tank; Clean, Inspect, Repair, and Preserve**
04.8.1	Open, ventilate, and clean dirty oil tank prior gas free.
04.8.2	Remove water, mud, silt and debris, and shall be disposed in accordance with local state and federal regulations.
04.8.3	All equipment necessary for liquid transfer and disposal shall be provided by the shipyard.
04.8.4	Layout and cut standard manhole opening on top plate of the tank to facilitate cleaning and inspection.
04.8.5	Fabricate watertight flush bolted manhole cover and install with new bolts and gasket.
04.8.6	Jet blast tank interior surfaces to white metal (hull, bulkhead, and overhead) approximately more or less 128 sq. ft. Ensure blasted areas shall not be allowed to stand overnight without application of paint coating.
04.8.7	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter.
04.8.8	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy painting schedule.

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04.8.9	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
04.8.10	Extent paint coating drying time as required by weather conditions.
04.8.11	**Apply Paint entire tanks surfaces with one coat MIL-PRF-23236, Type VII, Class 7/18, 20-30 MILS Thickness.**
04.8.12	**Apply One Stripe Coat MILL-PRF-23236, Type VII Class 7/18, 10-15 MILS Thickness.**
04.8.13	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
04.8.14	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
2019-05	**Engine Room Interior Hull Surface; Clean, Inspect, Repair and Preserve (Below Water Line)**
05.1	Remove all deck plates and match mark each deck plate for identification and location for reinstallation.
05.2	Replace defective screws noted during removal and reinstall in accordance with existing designed characteristics.
05.3	Ventilate, clean, and dispose of contaminated material in accordance with local state and federal regulations.
05.4	Provide temporary protective covering on each mechanical and electrical equipment prior to start cleaning, repair and preservation.
05.5	Remove water, mud, silt and debris, and shall be disposed in accordance with local state and federal regulations.
05.6	Mechanically clean engine room interior hull surfaces (from bilge to water line) to white metal approximately more or less 1,284 square feet. Ensure cleaned surface areas shall not be allowed to stand overnight without application of paint coating IAW U. S. Navy paint schedule.
05.7	**Note:** Ensure all estimated areas underneath or below the equipment, tanks, compartments, working spaces and bilges will be accomplished for engine room preservation. 1. Steering Pump Hydraulic Reservoir/Lube Oil Storage Tank Bilge 64 sq. ft. 2. CHT Tank/MPAC's Bilge 35 sq. ft. 3. Capstan Pump Hydraulic Reservoir Bilge 42 sq. ft. 4. Low Sea Chest Box Bilge/Bulkhead 82 sq. ft. 5. Fire Pump Base Plate and Bilge 112 sq. ft. 6. Shaft Compartment Bilge and Bulkhead 80 sq. ft. 7. Bilge Pump, Fire Gen. Service Pump, and Salt Water Manifold Bilge 81 sq. ft. 8. Day Tank Bilge12 sq. ft. 9. Upper Sea Chest Box 4 sq. ft. 10. No. 2 Port/Stbd. Fuel Tanks Top Plate 212 sq. ft. 11. MPDE/Red Gear Bilge 410 sq. ft. 12. No. 1 & 2 SSDG Bilge112 sq. ft. 13. Heat Exchanger Bilge16 sq. ft. 14. MPDE Fuel Filter Bilge 4 sq. ft. 15. MPDE Oil Strainer Bilge 2 sq. ft. 16. Engine Room Working Space Bilge 56 sq. ft.
05.8	Upon completion of preservation reinstall all material to the proper location and clean the entire engine room in orderly manners.
05.9	Note: Accomplish this work phase below waterline of the boat.
05.10	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter.
05.11	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer.
05.12	Extent paint coating drying time as required by weather conditions.
05.13	Note: All corners, edges, and underneath surfaces shall be stripped paint by using paint brush.
05.14	**Bilge Area:** **Apply One Stripe Coat MIL-23236-Type VII Class 5, Class 17, 6-8 MILS Thickness.** **Apply One Top Coat MIL-PRF23236 Type VII, Class 5, 6-8 MILS.**
05.15	**Deck/Bulkheads** **Apply One Coat MIL-PRF-23236, Type VII, Class5, 4-8 MILS Thickness.**
05.16	Provide three legible copies of (DFT) Dry Film Thickness Report and Certification to On Site Representative.
05.17	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
2016-06	**Lazarette Compartment Interior Hull; Clean, Inspect Repair and Preserve**
06.1	Remove all gratings to facilitate cleaning and preservation.
06.2	Open, ventilate, clean, and dispose of contaminated material in accordance with local state and federal regulations.
06.3	Remove water, mud, silt and debris, and shall be disposed in accordance with local state and federal regulations.
06.4	Provide temporary protective covering on each mechanical and electrical equipment prior to start cleaning, repair and preservation.
06.5	Mechanically clean lazarette compartment interior hull surfaces, bulkhead and overhead to white metal in entirety (, approximately more or less 1,054 square feet. Ensure cleaned surfaces areas shall not be allowed to stand overnight without application of paint coating.
06.6	Apply paint only to a clean dry surface, free of oil, corrosion, dirt or other foreign matter.
06.7	Apply paint in accordance with and under weather conditions as recommended by the paint manufacturer and U.S. Navy paint schedule.
06.8	Note: All corners, edges, and underneath surfaces shall be stripped painted by using paint brush.
06.9	Extent paint coating drying time as required by weather conditions.
06.10	**Bilge Area:** **Apply One Stripe Coat MIL-23236-Type VII Class 5, Class 17, 6-8 MILS Thickness.** **Apply One Top Coat MIL-PRF23236 Type VII, Class 5, 6-8 MILS.**
06.11	**Deck/Bulkheads/Overhead:** **Apply One Coat MIL-PRF-23236, Type VII, Class5, 4-8 MILS Thickness.**
06.12	Provide three legible copies of (DFT) Dry Film Thickness results and certificate of completion to On Site Representative.
06.13	**Note:** Interior tank cleaning and preservation shall be satisfactory inspected/approved by On Site Representative.
2019-07	**Fendering System Removal/Reinstallations/Repair As Required**
07.1	a) Location of Work: 1) Dry Dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 600-4442434 Fendering Arrangement & Details 2) NAVSHIPS Drawing No. 600-4483720 Installation of Additional Hull Fendering
07.2	**Inspection**
07.2.1	Visually inspect underwater hull for presence and condition of all bow fenders, side fenders, split pipe fenders.
07.2.2	Inspect split pipe fenders for dent, damaged, excessive corrosion and deterioration.
07.2.3	Submit condition report of inspection pertaining to condition of fendering system to On-Site Representative.

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07.2.4	Issues outside this scope of work which may be found during this phase will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.
07.3	**Reinstallation of Bow Fender**
07.3.1	Upon satisfactory completion of hull repair and preservation reinstall bow fenders in accordance IAW above reference c.1 & c.2.
07.3.3	Replace chains, eye bolts, nuts, shackles, washers and including retainer plates IAW existing designed characteristics.
07.3.4	Replace pad eye found defective prior to reinstallation and securing bow fenders.
07.3.5	Provide fire watch services until completion of hot work.
07.3.6	**Reinstallation of P/S Side D-Fenders**
07.4.2	Purchase and replace Port Side, approximately 18 L.F. "D"-fender in accordance with above reference c.1 & c.2.
07.4.3	Note: Existing D- Fenders found defective after cleaning shall be addressed by Separate Correspondence.
07.4.4	Replace 4 each dented retainer plate 1/2" thick x 5-1/2" wide x 21-1/4" long penetrating side hull.
07.4.5	Clean and chased all bolts and nuts prior to reuse.
07.4.6	Fabricate and install 14 each new 3" schedule 80 bended pipe mounting brackets in accordance with existing designed characteristics.
07.4.7	Provide fire watch services until completion of hot work.
07.4.8	Reinstall entire rubber fenders upon satisfactory completion structural repair and preservation with complete securing bolts and fasteners.
07.4.9	Salvage all removed and unused rubber fendering to be loaded onboard the tug for return to GTMO.
07.5	**Reinstallation of P/S Side Under Water Rubber Fenders**
07.5.1	Clean and preserve flat bars, studs, washers, nuts, and all associated mounting and securing accessories of rubber fender with labeled in accordance with reference c.1 & c.2. *Note: Existing rubber fenders if found defective after cleaning shall be addressed by SEPCOR.*
07.5.2	Replace stud bolts, nuts and washers found defective. Note: the purposes of this estimate, allow 20 each stud bolts and nuts replacement. Any additional repairs beyond this quantity will be addressed SEPCOR to Site Representative.
07.5.3	Upon satisfactory completion of hull repair and preservation reinstall bow fenders in accordance IAW above reference c.1 & c.2.
07.5.4	Replace pad eye found defective prior to reinstallation of bow fenders. Ensure pad eye design shall be IAW existing designed characteristics.
07.5.5	Note: All existing stud bolts damaged during the process of removal shall be replaced by selected shipyard.
07.5.6	Provide fire watch services until completion of hot work.
07.6	**Replace Port and Starboard 01 Level Fender (6 EA.)**
07.6.1	Remove existing Port and Starboard and install new cylindrical type rubber fender in accordance with existing design characteristics.
07.6.2	Note: Selected bidders shall purchased 6 ea. 01 Level Fender (Bucket Fender) including turn buckles and chains in accordance with existing design characteristics.
07.6.3	Repair and preserve bucket fenders structural supports prior to reinstallation of 6 each new fender . Preservation shall be in accordance U. S. Navy painting Schedule.
07.6.4	Note: Replace turn buckles shackles, chains and other accessories with stainless steel material.
2019-08	**Hull Zinc Protector; Removal and Renewal**

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Number	Description		
08.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Zinc Data: MIL-A-18001, Qty- 37 ea. C) References: 1) NAVSHIPS Drawing No. 600-4442435 Cathodic protection		
08.2	**Removals;**		
08.2.1	Remove all hull zinc protectors and welded stud bolts and grinds flush as stated in NAVSHIPS Drawing No. 600-4442435 installed in various locations.		
08.2.2	Replace defective stud bolt as required.		
08.3	**Installation;**		
08.3.1	**Note: Zinc Anodes and fasteners shall be provided by the government (GFM)**		
08.3.2	Upon satisfactory completion of hull repair, cleaning, and painting, furnish and install new 37 each zinc protectors complete with approx. 74-each stud bolts and nuts in detailed locations and in accordance with the above reference NAVSHIPS Drawing No. 600-4442435.		
08.3.3	Note: Zinc surfaces shall not be preserved or painted. Additional zincs may be required to be installed. These efforts will be addressed SEPCOR to the On-Site Representative.		
2019-09	**Sea (Hull) Valves, Sea Chest Box, Waster Piece and Strainers: Removal, Repair and Reinstallation**		
09.1	a) Location of Work: 1) Sea Chest Box, Engine Room b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 120-4442381 Sea chest Details		
09.4	**Sea chest Valves; Remove and Replace**		
09.4.1	**Note: All sea chest valves listed on item 09.3.7 up to 09.3.23 will be (GFM) Government Furnish Material.**		
09.4.2	Accomplish installation of all new sea chest valves with new gasket and securing fasteners in accordance with design characteristics.		
09.4.3	Accomplish leak testing of new valves prior to installations with the presence of On-Site Representative.		
09.4.4	Provide three legible copies leak test report to On Site Representative to installation.		
09.4.5	Notes: 1. Remove/replace six (6) each 1- 1/2 in. socket weld flange for sea chest air vent valves. 2. Remove/replace two (2) each 3 in. socket weld flange for SSDG's lower sea chest valve.		
09.4.6	Clean free and lubricate valve stem.		
09.4.7	MPDE Low Sea Chest Main	1 EA. 6" Angle Globe Valve, Primary,	Location: 2-23-0 (FR-23-25)
09.4.8	MPDE High Sea Chest Main	1 EA. 6" Gate Valve,	Location: 2-25-1 (FR-25-26)
09.4.9	SSDG's High Sea Chest Main	1 EA. 3" Angle Valve,	Location: 2-25-1 (FR-25-26)
09.4.10	SSDG's Low Sea Chest Main	1 EA. 3" Gate Valve,	Location: 2-23-0 (FR-23-25)
09.4.11	FPDE Sea Chest Main	1 EA. 3" Globe Valve, Primary,	Location: 2-37-2 (FR-37-39)
09.4.12	FPDE Sea Chest	1 EA. 2" Globe Valve, Secondary,	Location: 2-37-2 (FR-37-39)
09.4.13	Main Fire Pump Sea Chest	1 EA. 8" Gate Valve,	Location: 2-37-2 (FR-37-39)
09.4.14	Main Fire Pump Sea Chest	1 EA. 1" Globe Valve, Blowdown,	Location: 2-37-2 (FR-37-39)
09.4.15	Main Fire Pump Sea Chest	1 EA. 1-1/2" Gate Valve, Vent,	Location: 2-37-2 (FR-37-39)
09.4.16	Low Sea Chest	1 EA. 1" Globe Valve, Blowdown,	Location: 2-23-0 (FR-23-25)
09.4.17	Low Sea Chest	1 EA. 1-1/2" Gate Valve, Vent,	Location: 2-22-0 (FR-23-25)
09.4.18	High Sea Chest	1 EA. 1" Globe Valve, Blowdown,	Location: 2-25-1 (FR 25-26)
09.4.19	High Sea Chest	1 EA. 1-1/2" Gate Valve, Vent,	Location: 2-25-1 (FR 25-26)
09.4.20	A/C Circulating Pump Sea Chest	1 EA. 2" Globe Valve,	Location: 2-37-2 (FR 37-39)
09.4.21	Fire / Gen Service Pump	1 EA. 3" Gate Valve,	Location: 2-37-2 (FR 37-39)
09.4.22	Port Riser Valve, Main Deck	1 EA. 4" Gate Valve	Location: 1-35-2 (FR-35)
09.4.23	Stbd. Riser Valve, Main Deck	1 EA. 4" Gate Valve	Location: 1-35-1 (FR-35)
09.4.24	Astern Tube Cooling Isolation Valve	1 EA. 1-1/4" Gate Valve,	Location: 2-42-0 (FR 42-43)
09.4.25	Issues which may be found during this phase will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.		

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09.4.26	Note: Salvage all removed old sea chest valves and to be loaded onboard the tug for return to GTMO.
2019-10	**Rudder; Remove; Clean, Inspect, Repair, Preserve and Reinstall**
10.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 519-4442422 Rudder Details 2) NAVSHIPS Drawing No. 519-4442423 Rudder Stock & Bearing Support
10.2	**Cleaning and Inspection**
10.2.1	Make the necessary removals and unship the rudder and all associated components.
10.2.2	Sandblast to white metal, clean rudder surfaces and all related parts components free of all corrosion, grease and any foreign matter.
10.2.3	Visually inspect rudder for cracks, pitting's, and other defects, provide written condition report to On-Site Representative.
10.2.4	Examine all rudder components for wear and defects, and other discrepancies. Provide written condition report to On-Site Representative.
10.2.5	Note: For purposes of this estimate, allow for a combined 10 Sq. Ft of plate replacement to be accomplished in these repairs, 100 SQ Inches of Clad Welding (pitting repair) and 50 Linear ft. of weld repair. Any issues/additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.
10.3	**Rudder Air Test**
10.3.1	Air test rudder for two (2) PSI. Pressure must hold for a minimum of ten (10) minutes for satisfactory test in the presence of On-Site Representative. An appropriate water column shall be used to conduct air test.
10.3.2	Unsatisfactory results of air test shall be repaired by the shipyard.
10.3.3	Provide three legible copies of air test results and certificate of completion to On Site Representative.
10.4	**Preservation**
10.4.2	In the presence of On-Site Representative and upon completion of repairs and satisfactory test, flood rudder with metal conditioning compound. (Flow Coat).
10.4.3	Appropriate anti-fouling system to be installed as applied on hull area.
10.4.4	Reinstall 2-each drain plugs with thread sealant compound.
10.4.5	Rudder surfaces prepared and applied with appropriate pretreatment/preservation prior to re-install.
10.4.6	Install 6-ea zinc anode to rudder surfaces (3 each side, evenly spaced in the center of the rudder) complete with mounting studs bolts and nuts after completion of repairs and preservations.
10.5	**Re-Installation**
10.5.1	Re-install rudder and associated components, after completion and approval of all rudder repair work and testing has been accepted by the On-Site Representative.
10.5.2	Reinstall rudder and associated components in accordance with reference c.1 & c.2.
2019-11	**Rudder Stock Removal, Inspection, Repair, and Re-installation**
11.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 519-4442422 Rudder Details 2) NAVSHIPS Drawing No. 519-4442423 Rudder Stock & Bearing Support
11.2	**Removal; Clean, and Inspect**
1.2.1	When authorized by On-Site Representative, make the necessary removals and unship the rudder stock, including associated components (See references C1 and C2 as listed in this section).
1.2.2	Visually inspect the condition/check rudder stock for cracks, pitting's, and other defects, provide written condition report to the On-Site Representative.
11.3	**Cleaning and Examination**
11.3.1	Clean all parts of rudder stock, bearing surfaces and other related components free of all corrosion, grease and any foreign matter.
11.3.3	Examine all the rudder components for wear and defects. Take and record dimensions, condition and clearance measurements of the rudder stock, rudder bearings, fasteners and all associated accessories, identify any clearance reading which do not fall within established and approved parameters IAW NSTM S9086-HN-STM-010/CH-244R7 Table 244-5-1. Provide written condition report to the On-Site Representative.
11.3.4	Issues which may be found during this phase will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.
11.3.5	Provide three legible copies of examination results and certification of completion to On Site Representative.
11.4	**Re-bushing of Rudder Stock**
11.4.1	Make the necessary removals as designated by the On-Site Representative.
11.4.2	Furnish specified material, machine and install new GR 97 MICARTA Bushing, press fit in to the rudder trunk in accordance with reference drawing NAVSHIPS Drawing No. 519-4442423. Rudder stock design clearances shall be maintained and restored to its original condition.
11.5	**Re-packing of Rudder Stock**
11.5.1	Make the necessary removals and remove old packing from rudder stuffing box and make sure packing gland is moving freely.
11.5.2	Clean gland stuffing box and securements free of all rust, corrosion and other foreign matter. Chase the thread all fastening material.
11.5.3	Furnish and install new Upper Carrier Bearing, packing gland, and packing shall be installed.
11.5.4	Reassemble packing gland upon installation of new packing and adjust followers. Replace any missing and defective fastening material.
11.5.5	Packing material shall be IAW material design characteristics.
11.6	**Re-installation**
11.6.1	Re-install rudder stock including associated components IAW NSTM S9086-HN-STM-010/CH-244R7 as a guide.
11.6.3	Rudder stock shall be restored to its original working condition.
11.6.4	On-Site Representative will witness rudder stock and components installation. Provide On-Site Representative with a written report detailing final clearances.

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07.6	Operational Testing
07.6.2	Cycle rudder from stop to stop to ensure smooth operation prior to undocking of vessel. Final operational test will be conducted during sea trial.

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07.6.3	All testing efforts shall be witnessed and accepted by On-Site Representative.
07.6.4	Provide three legible copies operational testing results and certificate of completion to On Site Representative.
2019-12	**Propeller Inspection / Removal / Repair and Re-Installation**
12.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) Standard Item 2) NAVSHIPS Drawing No. S9245-AR-TSM-0001/PROP, Technical Manual Marine Propeller Inspection 3) NSTM- MIL-STD.- 271, Requirements for Nondestructive Testing Methods 4) NSTM- MIL-STD.- 2035, Nondestructive Testing Acceptance Criteria 5) NAVSHIPS Drawing No. 203-4442389 Propeller Fairwater & Cap 6) NSTM - S9086-HP--STM Chapter 245, Propeller
12.2	**Removal/Inspection**
12.2.1	Loosen propeller nut in accordance with C4 and C5 reference drawing.
12.2.2	Measure fit of key in keyway for top to bottom and side to side clearances.
12.2.3	Part taper fit and remove nut and propeller.
12.2.4	Handle propeller with safety straps rigged around the hub, using C5 for guidance.
12.2.5	Route propeller, hub cap, and key to shop for cleaning and repair.
12.2.6	Visually inspect parts for wear and defects which would render them unfit for continued use.
12.2.7	Inspect for missing nuts and hardware. Replace defective parts and hardware as required for installation.
12.2.8	Clean to remove salt, scale and marine growth upon dry docking before growth has dried out.
12.2.9	Visually inspect propeller surfaces for cracks, nicks, or bent edges. Submit legible copy to On Site Representative for verifications.
12.2.10	Remove propeller IAW NSTM S9086-HP-STM-010/CH-245R5 as a guide.
12.2.11	Clean, and polish propeller blades and hub to smooth finish.
12.2.12	Penetration test propeller assembly for defects in accordance with Technical Manual c.3. Submit legible copies to On Site Representative for record purposes.
12.2.13	After removal from the craft clean propeller surfaces, free of all corrosion and any foreign matter, then transport to propeller repair shop.
12.2.14	Upon receipt of a propeller for repair, the repair facility shall perform and document a visual technical and dimensional inspection of the propeller in accordance with NSTM S9086-HP-STM-010/CH-245R5. The repair facility shall submit the inspection reports and proposed repairs to the GOR. The On-Site Representative is responsible to have the inspection reports reviewed by the appropriate technical personnel.
12.2.15	Check rope guard working condition. Repair/replace as required.
12.2.16	Issues which may be found during this phase will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.
12.2.17	Provide three legible copies of inspection results to On Site Representative.
12.3	**Repair and Balance**
12.3.1	Clean and polish propeller hub taper, key, and keyway.
12.3.2	Chase studs bolt threads and screw holes. Replace defective bolts as required.
12.3.3	Hand scrape or file propeller mating flange surfaces to remove nicks, burrs, or irregularities.
12.3.4	Minor defects (e.g., small nicks, dents in localized areas, small bends, etc.) must be repaired by light grinding, filing, sanding, minor welding, or minor straightening by qualified personnel IAW NSTM S9086-HP-STM-010/CH-245R5 specifications and the propeller geometry as stamped on the hub of the propeller and as authorized by the On-Site Representative.
12.3.5	Accomplish nondestructive test in accordance with C3 Technical Manual Nondestructive Testing Methods.
12.3.6	Air Test the hub cap assembly for at 10 PSI for ten minutes and observe for leakage. Repair as required.
12.3.7	Inspect and fit propeller to shaft. Ensure taper in propeller hub and on shaft are clean and smooth prior to fit.
12.3.8	Install propeller without key, and seat on taper with sufficient pressure to transfer the bluing. Ensure propeller can be remove from shaft easily by not using draw bolt to remove it.
12.3.9	Remove propeller from shaft, read the bluing. Acceptable fit will be 60% contact uniformly distributed on the forward and after one third of taper. It is preferable to have slightly heavier fit on the large end taper of the shaft.
12.3.10	Prior to removal of propeller from bluing make reference on the shaft by scribing at the end of the hub facing as a guide.
12.3.11	Final fit shall be with key installed.
12.3.12	Polish blade surfaces with applicable disc and balance propeller by static balance and confirm all clearances and conditions meet. Furnish On-Site Representative with balance certificate.
12.3.13	When propeller deficiencies require additional repair such as welding of major defects or straightening of large bends, etc., repairs must be accomplished with the approval of On-Site Representative. Based on the propeller's performance deficiency, the engineering assessment, and the characteristics of the physical defects, an authorized repair facility shall perform a pre-repair dimensional inspection to determine the extent of the damage and/or deficiencies. Note: For purposes of this estimate, allow estimated approx. 60-ea holes to be (puddle up welded) accomplished in these repairs.
12.3.14	Provide three legible copies of repair and balance results and certification of completion to On Site Representative.
12.4	**Re-Installation**
12.4.1	Upon completing repairs, perform final visual and dimensional inspections of the propeller, a qualified propeller certification inspector shall verify that the inspection data accurately represent the actual condition of the propeller and shall review the data to confirm completeness.
12.4.2	Re-install propeller IAW NSTM S9086-HP-STM-010/CH-245R5 as a guide after confirmed all design conditions and meet established requirements with the On-Site Representative.
12.4.3	Final operational test will be conducted during sea trial. All testing efforts shall be witnessed and accepted by On-Site Representative.
2019-13	**Main Propulsion Shafting, Remove, Inspect, Repair and Align**
13.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 203-4442386 Shafting Arrangement 2) NAVSHIPS Drawing No. 203-4442389 Propeller, Fairwater Cap 3) NAVSHIPS Drawing No. 100-4442364 Stern Frame and Skeg

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	SCOPE OF WORK (SOW), FOR OUTSIDE SHIPYARD SUPPORT
Number	**Description**
13.2	**Removal**
	Make necessary removals of Stern Tube box assembly, Stern Tube Steady Bearings, Coupling Bolts from Propeller Shaft to Reduction Gear Propeller Shaft and Shaft Brake.
13.2.3	Metal stamp coupling bolting and flanges for identification and to ensure return to original locations.
13.2.4	Remove shaft including all associated components and transit to machine shop and check shaft for run-out, trueness, and physical condition. Provide written report to On-Site Representative.
13.2.5	Swing shaft section between the lathe centers and check for run out and trueness in the presence of On-Site Representative. Straighten shaft to maximum run out 0.005 inch. True face of coupling by skim cut and recondition threads, keys and keyway remove all fiberglass coating. Provide clad welding as required. Provide written report to On-Site Representative.
13.3	**Cleaning/Inspection and Repair**
13.3.1	Clean stern tube bearing shell, shaft brake, steady bearing, and steadying bearing housing free of foreign matter.
13.3.2	Clean shaft covering by hand scraping and sweep blasting to remove marine growth and foreign matter.
13.3.3	Cover shaft with Fiberglass Tape and Epoxy Resin Compound in accordance with NSTM -010/CH-243 - MIL-STD-2199.
13.3.4	Shaft coupling, coupling bolt holes, and all bolts must be fitted and shall be bench marked/match marked for proper reassembly.
13.3.5	Restore threads on coupling bolts by casting and tapping to restore thread form.
13.3.6	Clean and polish shaft journal, taper, and keyways to remove nicks and burrs. Remachine keyway as required.
13.3.7	Manufacture, fit and install a new keys for coupling and propeller.
13.3.8	Repair the stuffing tube and stuffing box and assemble.
13.3.9	Perform spark test to the shaft after fiberglass has been installed to ensure complete adhesion of the fiberglass.
13.3.10	All testing efforts shall be witnessed by the On-Site Representative.
13.3.11	Additional issues will be addressed to the On-Site Representative for resolution.
13.3.12	Measure and record shaft sleeve diameters, and bearing and packing journal and provide inspection report to On Site Representative.
13.3.13	Machine brake drum removing minimum amount of metal to insure a true surface using c.1, c.2 and c.3 reference drawing for guidance.
13.3.14	Measure alignment of stern tube bearing, stuffing box, steady bearing, and reduction gear shaft using optical alignment method. Ensure stuffing box concentric to shaft. Measure and record alignment reading and submit to On Site Representative.
13.3.15	Check alignment of coupling both face by installing bolts in coupling leaving 1/8" in. gap opening. Measure alignment of coupling both face and periphery. Ensure allowable tolerance will be 0.005 inch. Install new cotter pin in accordance with reference drawing.
13.3.16	All testing efforts shall be witnessed by the On-Site Representative.
13.3.17	Perform spark test to the shaft after fiberglass has been installed to ensure complete adhesion of the fiberglass.
	Provide three copies of spark test results and certificate of completion to On Site Representative.
13.3.18	Issues not covered which may be found during this phase will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.
13.4	**Propeller Shaft Sleeve/Bearing Renewal**
13.4.1	Investigate/check for any evidence of seat damage or wear or other deterioration, bearing seats for conformance to the dimensions and tolerance limits. Provide written report to On-Site Representative.
13.4.2	*Note: For purposes of this estimate, allow estimated approx. 15-ea holes to be (puddle up welded) accomplished in these repairs.*
13.4.3	Replace steady/self-centering roller bearing and cutlass bearing IAW NSTM S9086-HN-STM-010/CH-244R7 and NSTM S9086-HM-STM-010/CH-243 CHAPTER 243 as a guide. Machining and fitting of the bearing shall be included on this item.

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13.4.4	Chase all threads of studs and renew any missing or defective fastening material.
13.5	**Re-Installation and Repacking**
13.5.1	Re-install shaft after all clearances and condition confirmed IAW NSTM S9086-HN-STM-010/CH-244R7 and NSTM S9086-HM-STM-010/CH-243 CHAPTER 243 as a guide.
13.5.2	Install new studs, nuts, washers, and miscellaneous fasteners found to be missing, defective, or unserviceable.
13.5.3	Accomplish final bearing fit, measure and record final bearing clearance, adjust packing on shaft for acceptable/designed leakage.
13.5.4	Check packing gland working condition
13.5.5	Replace packing material in accordance with reference drawing and existing designed characteristics.
13.5.6	Accomplish operational testing in conjunction with dock and sea trials to ensure no vibration, unusual noise, or binding of shaft through full range of speed..
13.5.7	Provide three legible copies of testing results and certificate of completion to On Site Representative.
13.5.8	All testing efforts shall be witnessed and accepted by On-Site Representative.
2019-14	**Bottom Hull Plating Inspection**
14.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 101-4442366 Transverse Framing Frame 24 2) NAVSHIPS Drawing No. 101-4442368 Longitudinal Frame Aft Frame 55 3) NAVSHIPS Drawing No. 120-4442381 Sea chest Details 4) NAVSHIPS Drawing No. 100-4442363 Bulwarks 5) NAVSHIPS Drawing No. 100-4442362 Shell Expansion (Hull Plating Thickness) 6) NAVSHIPS Drawing No. 101-4442364 Stem Frame and Skeg
14.2	**Hull Inspection**
14.2.1	**Note: Repair of main deck, bulwarks, machinery room, 01 level, pilot house are not included for these work phase.**
14.2.2	Visually inspect the condition of all verticals and horizontals surfaces of the Underwater Hull from the bottom of the Keel to include the Upper Boot top Level and freeboard areas, including Appendages, Sea Chests, Underwater Discharge Openings, Shaft Tunnel, and Bulwarks Gunnels. Structural integrity shall confirm all clearances and conditions meet established requirements with the On-Site Representative.
14.2.3	Place in writing all cracks, pitting, and other defects. Provide written report to On-Site Representative.
14.2.4	Conduct UT on prepared spots, on the underwater hull surfaces to include the free board (hull area between the designated waterline to the main deck) using a 24" grid system, plot readings. Note: All suspected areas shall be cleaned to bare and U.T. 6 in. grid system for final examinations.
14.2.5	Conduct UT on hull plating around all below water hull penetrations. From the edge of the penetration out six inches test 100% of the material in that area.
14.2.6	Upon completion of UT test of bottom hull plate, provide written report to On Site Representative for verification of deteriorated plate replacement.
14.2.7	Note: All areas with 25% corrosion limits shall be reported in writing to On Site Representative prior for repair.
14.2.8	All unused efforts/material to meet the requirements will be re-Reimbursable or at the discretion of the On-Site Representative will be used on other plate thickness necessary to be repaired/replaced.
14.2.9	Furnish and replace defective and/or removed bottom hull plating, side shell plating/rib/framings and any required structural members with designed weight and material designated by On-Site Representative.
14.2.10	Hull material replacement shall include but not limited to: flat rolled, bent, formed, or other designed shapes applicable to the vessel.
14.2.11	All material shall conform to original vessel design; actual type and size material requirements shall be raised from the vessel.
14.2.12	All materials shall be blasted to white metal and pretreatment applied prior to installation on the vessel.
14.2.13	All new material installed shall be welded in place to conform to vessel original construction.
14.2.14	As designated by the On-Site Representative, vee out seams cracks splits, broken welds and unwelded joints. Provide welding services by a certified Welder IAW ABS Welding Standards.
14.2.15	All painted area disturbed by welding shall be cleaned, primed and painted IAW NAVSEA S9086-VD-STM-030/CH-631V3R2 Table 631-8-11 to include a minimum of 12" beyond each side of all disturbed areas.
14.2.16	Accomplish all welding efforts in succession/coordination with the gas freeing of the craft.
14.2.17	*Note: For purposes of this estimate, allow 96 sq. ft. of hull replacement and sea chest box to be accomplished in these repairs on different areas. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
14.2.18	Provide three legible copies of UT results with complete drawing to On Site Representative.
2019-15	**U/W Hull and Freeboard: Pressure Wash, Clean and Preserve**
15.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 605-4563139 Painting and Coating Schedule 2) NAVSHIPS Drawing No. 120-4442381 Sea chest Details
15.2	**Blasting Precaution**
15.2.1	Prior to any blasting as specified in this item, all hull openings, hatches, vents, or any other opening to the interior of the vessel shall be blanked off and sealed to prevent entry of blasting material. *Note: After successful completion of blasting, preservation, and painting, remove blank off material where access may be required.*
15.2.3	Establish safety precautions/protections to prevent damage to electrical wirings, fixtures, data and nameplates, glass of port light, and windows, instrument and any components.
15.2.4	Any and all such components damaged on the vessel in the performance of this item shall be repaired and renewed at the expenses of the successful bidder.
15.3	**Requirements for Paint/Preservation Application**
15.3.1	**Note: Blasting and Preservation of Main Deck, and Above Structures is not included for these work phase.**
15.3.2	Jet blast to bare metal of underwater hull and freeboard from keel up to and including, outer surface of bulwarks, fwd. bull nose, appendages, rudder, strainer plates, rope guard, and interiors of sea chests (suction and overboard discharge and shaft tunnel exterior.
15.3.3	Remove protection upon completion of painting.

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15.3.4	Paint blasted area from keel to upper boot topping limits with one coat of Epoxy Formula 150 of MIL-P-24441 to a dry film thickness of 2.0 to 4.0 mils.
15.3.5	Apply one coat of Epoxy Formula 151 of MIL-P-24441 to a dry thickness of 2.0 to 4.0 mils.
15.3.6	A minimum total dry film thickness 12.0 mils shall be attained.
15.3.7	Note: Minimum drying time is two (2) hours between coats.
15.3.8	The boot topping shall be cut in as original designed characteristics.
15.3.9	Note: Minimum drying time 24 hours shall be allowed between last coat of underwater hull and boot top paint before undocking of the craft.
15.3.10	Apply two coat of Enamel Black to freeboard from upper limits of boot topping up to and including outer surfaces of bulwarks and bull nose.
15.3.11	Anti-corrosive and anti-fouling paint shall be applied in alternating colors to ensure coverage and to aid in failure analysis.
15.3.12	Anti-fouling paint shall be in the order Black/Red/Black except in the boot top areas.
15.3.13	Minimum DFT (Dry Film Thickness) shall be 12 mils in accordance with QPL-24647
15.3.14	Note: No painting or preservation efforts will be applied in any area where dust/dirt can be introduced into the efforts.
2019-16	**Draft Marking and Hull Designation**
16.1	a) Location of Work: 1) Dry Dock b) Identification 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 605-4563141 Hull Marking & Details 2) NAVSHIPS Drawing No. 605-4563139 Painting and Coating Schedule
16.2	**Task Requirements**
16.2.1	Paint the vessel's load line, draft markings, and transom hull designation in accordance with details contain in above references 1 & 2. Make sure enamel paint shall be applied for hull lettering.
16.2.2	Note: No painting efforts will be applied in any area where dust/dirt can be introduced into the efforts.
2019-17	**Inspect and Operational test Transducer/Dept. Finder**
17.1.1	**Task Requirements**
17.1.2	Clean preserve depth finder lens with appropriate anti fouling paint.
17.1.3	All testing efforts shall be witnessed by the government On-Site Representative and accepted by On-Site Representative.
17.1.4	Issues which may be found during this phase will be addressed SEPCOR (Separate Correspondence) to On-Site Representative.
2019-18	**Miscellaneous Structural Repairs (Rudder Compartment, Engine Room Hull Frame, High Sea Chest Box, & Main Fire Pump Sea Chest Box.**
18.1	a) Location of Work: 1) Dry dock Facility b) Identification: 1) Not Applicable c) References: 1) NAVSHIPS Drawing No. 101-4442366 Transverse Framing 2) NAVSHIPS Drawing No. 101-4442368 Longitudinal Frame Aft Frame 55 3) NAVSHIPS Drawing No. 120-4442381 Sea chest Details 4) NAVSHIPS Drawing No. 100-4442363 Bulwarks 5) NAVSHIPS Drawing No. 100-4442362 Shell Expansion (Hull Plating Thickness) 6) NAVSHIPS Drawing No. 101-4442364 Stem Frame and Skeg
18.2	**Rudder Compartment Repairs**
18.2.1	Accomplish ultrasonic thickness test in entire hull compartment and bulkhead. Submit condition reports to On Site Representative for verification. Note: Hull plate with 25% undersize shall be subject for replacement.
18.2.2	Replace deteriorated stiffeners approximately more or less 30 lineal feet. Repair shall be IAW reference drawing specifications.
18.2.3	Replace deteriorated bulkheads and stiffeners in accordance with reference c.1 & .2..
18.2.4	*Note: For purposes of this estimate, allow 32 Sq. Ft. of bulkheads and 30 L.F of transverse frames replacement in these repairs on different areas. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
18.2.5	Note: Prior to crop out hull plating and bulkhead, secured rudder stock housing with appropriate design securing brackets to maintain rudder stock housing alignment.
18.2.6	Ensure bottom hull plate will not be affected during repair. Leak test of bottom hull shall be witnessed and accepted by the Government On Site Representative.
18.2.7	Upon satisfactory completion of repair preserve entire rudder compartment (Overhead, interior hull plate and bulkhead) IAW U. S. Navy painting schedule.
18.3	**Engine Room Hull Frame Repairs (Port Side)**
18.3.1	Replace deteriorated hull frame of (FR-23, FR-24, FR-25, FR-39 & FR-40) IAW reference c.1 & c.2. New material shall be preserved prior to installation.
18.3.2	*Note: For purposes of this estimate, allow 50 L.F. of engine room hull transverse frame replacement in these repairs on different areas. Any additional repairs beyond this quantity will be addressed SEPCOR to On-Site Representative.*
18.3.3	All new materials installed for the repair shall be cleaned to bare metal and preserved.
18.3.4	All affected or disturbed areas during the process of removal and reinstallation shall be repaired and preserved by the shipyard.
18.3.5	Accomplish (PT) for the new weldment penetrating the hull structures.
18.3.6	Provide fire watch services until completion of hot work.
18.4	**MPDE/SSDG Low Sea Chest Box/Repair As Required**
18.4.1	Remove/replace 1" blow down pipe, 1-1/2" air vent pipe. Repairs shall be IAW reference blue print drawing. Issues which may be found on this phase will be addressed to SEPCOR.
18.4.2	Conduct Ultrasonic Test on top tank, and walls of sea chest box. Submit condition report to On Site Representative. Repairs shall be IAW reference blue print drawing. Issues which may found on this phase will be addressed to SEPCOR.
18.4.3	Remove low sea chest strainer to facilitate inspections and possible repairs. Issues which may found on this phase will be addressed to SEPCOR.
18.4.4	Remove/replace waster piece for 1" valve blow down pipe, 1-1/2" valve air vent pipe, 6" valve suction of main engine/SSDG , and 3" valve suction of SSDG's connected to sea chest box. Submit condition report to Government On Site Representative. Repairs shall be IAW reference blue print

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18.4.5	Conduct Ultrasonic Test on top tank, and walls of sea chest box. Submit condition report to Government On Site Representative. Repairs shall be IAW reference blue print drawing. Issues which may found on this phase will be addressed to SEPCOR.
18.4.6	Remove low sea chest strainer to facilitate inspections and possible repairs. Issues which may found on this phase will be addressed to SEPCOR.
18.4.7	Provide three legible copies seachest leak test results and certification of completion to On Site Representative.
18.4.8	Replace zinc anode as required in accordance with design characteristics.
18.4.9	Reinstall strainer upon completion of repair and preservation. Ensure strainer doublers is in good working condition.
18.4.10	Provide three legible copies seachest leak test results and certification of completion to On Site Representative.
18.5	**MPDE/SSDG High Sea Chest Box/Repair As Required**
18.5.2	Remove/replace 1" blow down pipe, 1-1/2" air vent pipe. Repairs shall be IAW reference blue print drawing. Issues which may be found on this phase will be addressed to SEPCOR.
18.5.3	Remove sea chest strainer to facilitate UT inspections of walls and top plate of sea chest box. Issues which may be found on this phase will be addressed to SEPCOR.
18.5.4	Replace sachets box top plate approximately 4 sq. ft. IAW existing designed characteristics. Prime coat new plate prior to installation.
18.5.5	Remove/replace waster piece for 6" valve suction of main engine and 3" valve for SSDG's, 1-1/2" valve air vent, and 1" valve" blow down valve connected to sea chest box. Submit condition report to Government On Site Representative. Repairs shall be IAW reference blue print drawing. Issues which may be found on this phase will be addressed to SEPCOR.
18.5.6	Remove sea chest strainer to facilitate UT inspections of walls and top plate of sea chest box. Issues which may be found on this phase will be addressed to SEPCOR.
18.5.7	Replace zinc anode and stud bolts in accordance with design characteristics.
18.5.8	Provide three legible copies seachest leak test results and certification of completion to On Site Representative.
18.6	**Fire, Gen. Service and Ballast Sea Chest Box/Repair As Required**
18.6.1	Replace sea chest box top plate approximately more or less 2 sq. ft. Replacement and installation shall be in accordance with reference drawing c.3.
18.6.2	Remove/replace 1" blow down pipe, 1-1/2" air vent pipe. Repairs shall be IAW reference blue print drawing. Issues which may be found on this phase will be addressed to SEPCOR.
18.6.3	Remove sea chest strainer to facilitate UT inspections and possible repairs. Submit condition report to On Site Representative. Repairs shall be IAW reference blue print drawing. Issues which may found on this phase will be addressed to SEPCOR.
18.6.4	Remove/replace waster piece for 8" valve suction of Main Fire Pump, 3" valve suction of Diesel Engine/Bilge Pump/Gen. Service Pump , 2" valve suction of Air Cond. S.W. Circ.Pump, 1-1/2" air vent, and 1" blow down valve connected to sea chest box. Submit condition report to Government
18.6.5	Remove sea chest strainer to facilitate UT inspections and possible repairs. Submit condition report to Government On Site Representative. Repairs shall be IAW reference blue print drawing. Issues which may found on this phase will be addressed to SEPCOR.
18.6.6	Reinstall strainer upon completion of repair and preservation. Ensure strainer doublers is in good working condition. Replace stud bolts as required.
18.6.7	Replace zinc anode and stud bolts in accordance with design characteristics.
18.6.8	Provide three legible copies seachest leak test results and certification of completion to On Site Representative.
2019-19	**No. 1 & 2 Ship's Service Diesel Generator Set Repair/Operational Test (Electrical Side)**
19.1	**Removal/Repair/Operational Test of Generator Sets**
19.1.1	**1. Scope:** 1.1 Title: Ship Service Generator and Distribution Switchboard; Repair 1.2 Location of Work: Engine Room (2-22-0) **2. References:** a. Standard Items b. 0962-LP-070-3010, Technical Manual Ship Service Generator Switchboard c. 0961-LP--063-6010, Service Manual for Model 1045-7001 Diesel Generator Set 60 KW, 450 Volts A. C. and Model 1064-7002 d. SUPSHIP JAX DM-88-41, Method Cleaning for Electrical Equipment e. 302-4442400 1A-, Power Distribution Deck Plan f. 301-4442400A, Electric Plan Installation Standard Method. g. DOD-STD-2003, Electric Plant Installation Standard Method h. MIL-STD 1310, Shipboard Bonding, Grounding, and other Technique for Electromagnetic Compability and Safety
19.2	**Requirements**
19.2.1	Accomplish an insulation resistance and continuity test of bus bars and internal switch board wiring.
19.2.2	Disconnect solid state devices prior to measuring insulation resistance.
19.2.3	Clean the switchboard frames, braces, bus bars, panels and control components in accordance with 2.d, using 2.b, 2.e, and 2.f for guidance.
19.2.4	Visually inspect components prior to cleaning to detect evidence of deteriorating conditions that may not be apparent after cleaning.
19.2.5	Inspect and test the switchboard, switches, rheostats, indicator lights, relays, fuse holders, terminal blocks, circuit breakers, and internal wiring for physical and mechanical defects conformance to 2.b.
19.2.6	Remove defective and install new components. New material shall conform to the requirements of 2.b.
19.2.7	Burnish and align movable and stationary contacts
19.2.8	Adjust and lubricate rheostats, switches, pushbuttons, relays, contactors and limiting devices.
19.2.9	Remove/Replace defective fasteners in accordance with 2.b. and 2.f. as for guidance.
19.3	**Inspection**
19.3.1	Accomplish inspection on each A/C Generator or Motor Field in accordance with reference 2.c and provide condition report for documentation.
19.3.2	Note 1: All materials subject for replacement shall be included on inspection report.
19.3.3	Note 2: Provide 3 copies of inspection report to On Site Representative.
19.4	**Removal**
19.4.1	Uncouple Generator Sets from the diesel engine in accordance with manufacturer procedures. Ensure all shimming will be secured in placed to maintain existing designed characteristics.
19.4.2	Provide rigging and crane services to unship two (2) each generator from engine room to the shop and vice versa.
19.4.3	**Reinstallation of Generator Sets**
19.4.4	Upon satisfactory completion of repair reinstall each generator in accordance with DOD-STD-2003, Electric Plant Standard Methods.

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19.4.5	Ensure all foundation bolts and coupling bolts are properly torque in accordance with c.7, Vibration Analysis Machinery.
19.4.6	Accomplish the requirements for new disturbed surfaces.
19.5	**Operational Tests Generator**
19.5.1	Install and connect the test cabling and load bank to the generator circuit breakers or disconnect link in the switchboard.
19.5.2	Make preliminary checks and tests to determine that instrumentation and cabling are connected and operating properly.
19.5.3	Make equipment alignments and adjustments to achieve optimum tests in accordance with reference (c.2) Service Manual for Model 1045-7001 Diesel Generator Set 60 KW, 450 Volts, 60 HZ. 193/96.5 Amp., I,800 RPM.
19.5.4	Accomplish 60 KW SSDG Operational Test with Parallel in accordance with c.6 reference.
19.5.5	Submit legible copies of completed data sheets of c.6 and generator testing to the on site Government Representative.
2019-20	**Replace Switchboard Electrical Wiring Connections**
20.1	**1. Scope:** 1.1 Title: Ship Service Generator and Distribution Switchboard; Repair 1.2 Location of Work: Engine Room (2-22-0) **2. References:** a. Standard Items b. 0962-LP-070-3010, Technical Manual Ship Service Generator Switchboard c. 0961-LP--063-6010, Service Manual for Model 1045-7001 Diesel Generator Set 60 KW, 450 Volts A. C. and Model 1064-7002 d. SUPSHIP JAX DM-88-41, Method Cleaning for Electrical Equipment e. 302-4442400IA-, Power Distribution Deck Plan f. 301-4442400A, Electric Plan Installation Standard Method. g. DOD-STD-2003, Electric Plant Installation Standard Method h. MIL-STD 1310, Shipboard Bonding, Grounding, and other Technique for Electromagnetic Compability and Safety
20.1.1	Replace electrical wiring connections from generator to switchboard.
20.1.2	Template from existing, fabricate, and install new nameplates found incorrect or missing, using 2.c for guidance.
20.1.3	Install new wiring diagrams in the panels. The new diagram shall reflects actual configuration of the panel in which it is installed.
20.1.4	New diagram shall sealed and transparent plastic and shall be mounted on the inside of the panels so as conveniently accessible.
20.1.5	Dress and shape wiring and wire harness for neat appearance.
20.1.6	Install wire clamps on both ends of wire hinges. Install flexible insulating tubing over wire hinges to prevent chaffing.
20.1.7	Remove existing and install new wire markers in place of wire markers found illegible. New wire markers shall be fabricated of new insulation sleeving conforming to MIL-I-631, Type F, Grade A, Form U (White) Appropriate Size Marked (Branding).
20.1.8	Repair and reinsulate cable ends terminating in the panels in accordance with 2.f.
20.1.9	Resleeve all conductors.
20.1.10	Install new fasteners conforming to MIL-S-1222, Type One, Grade 5, carbon steel, zinc plated.
20.1.11	Install electrical equipment in accordance with reference 2.f. as guidance.
20.1.12	Bond ground equipment in accordance with 2.g.
20.1.13	**Operational Tests Generator Switchboard**
20.1.14	Accomplish operational test; Two (2) Generator Circuit Breaker with Motor, One (1) Shore Power Circuit Breaker with Motor Two (2) Reverse Power Relay, Automatic Two (2) Each Voltage Regulators Two (2) AC Volt Meters Two (2) AC Ammeters , Two (2) AC Wattmeter's One (1) Frequency Meter and Synchroscope, Fast and Slow Type. Note: Defective parts noted shall be repair/replaced as required.
20.1.15	Align adjust and correct discrepancies to achieve optimum operational characteristics.
20.1.16	Provide three legible copies of Operational Test Report to On Site Representative.
2019-17	**Undock Craft**
17.1	a) Location of Work: 1) Dry Dock Facility b) Identification: 1) Not Applicable c) References: 1) Not Applicable
17.2	**Task Requirements**
17.2.1	Undock the Craft.
17.2.2	Re-float the vessel in good order upon completion of all under water repair efforts, sandblasting/water blasting and painting.
17.2.3	When so authorized by On-Site Representative, return fuel/oil to vessel tanks. Pass fuel/oil through suitable filter, which will remove water and sediment (approximately 10,600-Gls of Fuels). Be sure all tanks are hazardous chemicals contaminate free.
17.2.4	When so authorized by the On-Site Representative, fill with water the vessel's water potable and ballast tanks (approximately 2,125-Gls of Potable water & 23,000 -Gls Fresh Water). Potable water shall be FDA approved for drinking and all water tanks are hazardous chemicals contaminate free.

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17.2.5	Furnish On-Site Representative an inventory account of fuel returned and sample of fuel.
2019-18	**Dockside Test**
18.1	a) Location of Work: 1) Throughout the Vessel b) Identification: 1) Not Applicable c) References: 1)Not Applicable
18.2	**Task Requirements**
18.2.1	Qualified Government/contractor personnel/crew will provide and conduct dockside (push pier) for satisfactory operational condition of propeller and propeller shaft alignment.
18.2.2	Test the steering system for proper operation. Cycle rudders and check rudder movement. Adjust mechanical stops to maximum limit.
18.2.3	All testing efforts shall be witnessed and accepted by On-Site Representative.
2019-19	**Sea Trial**
19.1	a) Location of Work: 1) Throughout the Vessel b) Identification: 1) Not Applicable
19.2	**Task Requirements**
19.2.1	Qualified Government/contractor personnel/crew will conduct sea trial to prove sea worthiness of the Craft, and to verify proper operation of equipment installed / overhauled / repaired.
19.2.2	Check and adjust stuffing box gland of rudder posts and propeller shaft to eliminate excessive leaks.
19.2.3	Cycle rudders from hard-over to hard-over and check rudder movement.
19.2.4	Test the electrical equipment during sea trial of craft, to verify satisfactory condition.
19.2.5	All testing efforts shall be witnessed and accepted by On-Site Representative.
2019-20	**Growth Work**
20.1	**Task Requirements**
20.2	Growth work will be addressed at the time the efforts are found by submitting a condition found report (CFR) to the government representative. The government representative will forward to the Contracting Officer for approval or disapproval.
2019-21	**GENERAL NOTES:**
21.1	1. A Contractor Representative from GTMO Port Operations will be available to consult as required.
21.2	3. Dock and Sea trial's) efforts will be provided by a qualified Government/Contractor crew. The Contractor will provide a representative to witness the dock and sea trial's) and provide input prior to acceptance by the On-Site Representative.
27.3	4. This work package only involves efforts that will be accomplished by the Ship Yard. Additional efforts should be expected to be performed when the craft returns to GTMO under continuous maintenance.